IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT(s):	Rimpela et al.		
SERIAL NO.:	09/383,481	ART UNIT:	2682
FILING DATE:	08/26/1999	EXAMINER:	Yun, Eugene
TITLE:	METHOD FOR INDICATING POWER CONSUMPTION IN A PACKET SWITCHED COMMUNICATION SYSTEM		
ATTORNEY DOCKET NO.:	460-008876-US (PAR)		

Board of Patent Appeals and Interferences
United States Patent and Trademark Office
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APPELLANTS' BRIEF

This is an appeal from the final rejection of the claims in the above-identified application. A Notice of Appeal was mailed on February 7, 2006.

I. REAL PARTY IN INTEREST

The real party in interest in this Appeal is Nokia Mobile Phones Limited.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-9 and 13-20 are pending in the application.

Claims 1-9 and 13-20 have been finally rejected.

The claims on appeal are 1-9 and 13-20.

IV. STATUS OF AMENDMENTS

There were no amendments to the claims subsequent to the final rejection of August 9, 2005.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 recites a method for controlling the operation of a mobile station (MS) in a packet switched communication network based on a cellular network (page 1, lines 4-5). The communication network is arranged to transfer information using downlink or uplink data transmission between a base station (BTS) and at least one mobile station (MS) by means of a radio channel (page 4, lines 1-26). The method includes using a transmission power on a set level on the radio channel to transfer information (See e.g. page 17, lines 12-21) and transmitting information that is divided into successive blocks

of the downlink data transmission from the base station (BTS) to the mobile station (MS) on the radio channel (page 4, line 37 - page 5, line 17). One of the blocks comprises information (PR) on the transmission power level of the one block of the downlink data transmission or another block of the downlink data transmission to be transmitted subsequently (page 18, line 24 - page 19, line 15).

Claim 8 recites a communication system for implementing packet switched data transmission based on a cellular network (page 1, lines 14-38). The communication system is arranged to transmit information using downlink or uplink data transmission between a base station (BTS) and at least one mobile station (MS) by means of a radio channel (page 4, lines 1-26). The communication system includes means for arranging data transmission on the radio channel to take place with a transmission power on a set level (See e.g. page 17, lines 12-21). The communication system also includes means for arranging the radio channel to transmit information that is divided into successive blocks of the downlink data transmission, from the base station (BTS) to the mobile station (MS) (page 4, line 37 - page 5, line 17). The communication system further includes means for arranging the communication system to transmit one of said blocks containing information (PR) on the transmission power level of said one block or another block to be transmitted subsequently, via a radio channel (page 18, line 24 - page 19, line 15).

Claim 9 recites a wireless communication device arranged to function in a communication system (page 1, lines 32-38). The communication system is arranged to implement packet switched data transmission based on a cellular network, and which

communication system is arranged to transmit information using downlink or uplink data transmission between a base station (BTS) and said wireless communication device (MS) by means of a radio channel (page 4, lines 1-35). The wireless communication device includes means for arranging data transmission on the radio channel to take place with a transmission power on a set level (See e.g. page 17, lines 12-21). The wireless communication device also includes means for arranging the radio channel to transmit information that is divided into successive blocks of the downlink data transmission, from the base station (BTS) to the wireless communication device (MS) (page 4, line 37 - page 5, line 17). The wireless communication device further includes means in the wireless communication device (MS) arranged to receive one of said blocks transmitted by the base station (BTS) on the radio channel, which one block contains information (PR) on the transmission power level of said one block or another block to be transmitted subsequently (page 18, line 24 - page 19, line 15).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Are claims 1-3, 6-9 and 13-20 unpatentable under 35 U.S.C. 103(a) as being obvious over Honkasalo et al., U.S. Patent 5,995,496 ("Honkasalo") in view of Li, U.S. Patent 5,673,266 and Whitehead, U.S. Patent 6,157,616.

VII. ARGUMENT

1. Claims 1, 8 and 9

Claim 1 recites using a transmission power on a set level on the radio channel to transfer information and that one of the blocks comprises information on the transmission power level of the one block of the downlink data transmission or another block of the downlink data transmission to be transmitted subsequently.

Claim 8 recites arranging data transmission on the radio channel to take place with a transmission power on a set level and arranging the communication system to transmit one of the blocks containing information on the transmission power level of the one block or another block to be transmitted subsequently.

Claim 9 recites arranging data transmission on the radio channel to take place with a transmission power on a set level and that the wireless communication device (MS) is arranged to receive one of the blocks transmitted by the base station (BTS) on the radio channel, which one block contains information (PR) on the transmission power level of the one block or another block to be transmitted subsequently.

The combination of Honkasalo, Li and Whitehead does not disclose or suggest that one of the blocks comprises information on the transmission power level of the one block of the downlink data transmission or another block of the downlink data transmission to be transmitted subsequently as claimed in Applicants' claims 1, 8 and 9.

Honkasalo discloses that before forming the connection and during long pauses between the packets, the terminal device measures the control signal transmitted by the base station and compares its signal power (R0) to the target level (t0), that is included by the base station in the control signal as a parameter. The base station also informs the terminal device of the transmission power via the control signal. The terminal device sets its transmission power to be the same as the base station transmission power, corrected by the difference between the target level and the measured quality of the link (t0-R0). In addition, the measured quality of the link (RXQUAL) is also transmitted in the acknowledgment messages of the packets, whereby the transmitting device changes its transmission power so that the quality will be controlled to the certain target level. The biggest step of the change is determined by the length of the packets. In the packet transfer downlink, the base station first uses the maximum power and then corrects the transmission power based on the measuring information included in the acknowledgment messages transmitted by the terminal device. (See Abstract).

As claimed by Applicants', the base station transmission power information is attached to the downlink blocks being sent at the same moment or later on. In Honkasalo, information on the quality level of the uplink bursts are attached to the downlink control messages. (Col. 8, lines 11-13). This quality level information in Honkasalo is based on the uplink bursts that are sent <u>earlier</u> by the terminal. Moreover, this quality information cannot be contained in the uplink bursts, because unlike Applicants' claimed features, information on the quality level of the uplink bursts in Honkasalo is calculated <u>after</u> the

uplink bursts are received by the base station based on the reception. (Col. 7, line 61 to col. 8, line 9). Applicants' claims recite using a transmission power on a set level on the radio channel to transfer information and that one of the blocks comprises information on the transmission power level of the one block of the downlink data transmission or another block of the downlink data transmission to be transmitted subsequently. Thus, Honkasalo does not disclose or suggest each feature of Applicants' claims 1, 8 and 9.

Li, in combination with Honkasalo, does not overcome the deficiencies of Honkasalo. Li discloses that in a synchronous fixed frame boundary system with variable data rates, a transmitter inserts into a current frame an indication of the data rate of the next frame (Abstract).

Applicants' claims 1, 8 and 9 recite, "power level" aspects of data transmission. Li does not refer to "power level." The Examiner refers to column 2, lines 25-31 of Li as supporting this rejection. Column 2, lines 25-31 of Li recites that "in its most preferred embodiment, as applied to one implementation of a CDMA digital cellular telephone system, as a transmitting station modem (SM) (located in either the mobile station or the base station) assembles a current traffic channel frame for convolutional encoding, the transmitting SM inserts an indication of the data rate of the subsequent channel frame of data." This passage goes on to recite "in many cases, (e.g. primary traffic frames) a vocoder speech encodes PCM data for the SM and notifies the transmitting SM through a central processing unit (CPU) of the appropriate data rate for the subsequent frame, and in other cases, the CPU issues commands to

the SM and the vocoder to influence the selection of the data rate." This passage of Li is directed to "data rates" and not "power levels". "Data rates" and "power "levels" are two completely different technical aspects of data transmission.

For example, a "data rate" is the amount of data transferred per second by a communications channel or a computing or storage device. The data rate is typically measured in units of bits per second (Bps) or baud. A "power level" on the other hand refers to the "RF" power level. The RF power level at either the transmitter output or receiver input is typically expressed in "Watts". The RF power level can also be expressed in "dBm".

Nowhere does Li teach or suggest the use of "power level" as recited by Applicants. Li merely deals with "data rates". Thus, Li in combination with Honkasalo does not disclose or suggest the features of Applicants' claims 1, 8 and 9 and in particular that one of the blocks comprises information on the transmission power level of the one block of the downlink data transmission or another block of the downlink data transmission to be transmitted subsequently.

Furthermore, combining Whitehead with Honkasalo and Li does not overcome the above-noted deficiencies. Whitehead discloses a method for transmission of digital information packets over a transmission channel. A transmitter computes a current value of a carrier-sense defer threshold and a transmit power level, based on observed ratios between recent packet transmission successes, recent packet collisions, recent packet deferrals, and an estimate of a path-loss characteristic of the transmission channel. The computed power level and carrier-sense defer threshold are selected to obtain a desired ratio of

at least two of future packet success, future packet collisions, or future packet deferrals. The current carrier-sense defer threshold value is used to determine when a carrier signal for another transmitter's digital information packet is present on the transmission channel. Transmission is deferred until the channel is determined to be clear of other packets. The packet is then transmitted at the computed power level. (See Abstract).

First, there is no motivation to combine Whitehead with Honkasalo and Li to achieve what is claimed by Applicants. Whitehead relates to providing power transmission to implement transmission in the system, which is different from what is being claimed by Applicants.

Applicants deal with downlink blocks that include information on the power level used in the transmission end. As recited in Applicants' claims, the information that is transmitted includes "information (PR) on the transmission power level of said one block". Whitehead does not disclose or suggest transmitting information on the power level of a block.

Moreover, in the instant Application, blocks addressed to several separate receivers are multiplexed into the same transmission, leading to varying power levels where each block may have different power levels. This is not the case in Whitehead as Whitehead only discusses the carrier power level and not the actual power level of the block or packet being sent.

In addition, in Whitehead the receiver is informed of the power level of the carrier. This does not bring any new value to the problem Applicants are addressing because the carrier power

level is already received via system info from the network in GSM and GPRS, for example. Furthermore, in Applicants' claims 1, 8 and 9, transmitted information is divided into successive blocks of the downlink data transmission wherein one of the blocks comprises information on the transmission power level of the one block. Applicants' claims 1, 8 and 9 do NOT define transmit power levels based on observed ratios between recent packet transmission successes, recent packet collisions, recent packet deferrals and an estimate of a path loss characteristic of the transmission channel as disclosed in Whitehead.

Also, Whitehead relates to WLAN and not mobile cellular networks. Claims 1, 8 and 9 relate to a mobile station. Consequently, there is no motivation to combine the teachings of Whitehead with Honkasalo or Li to achieve what is claimed in Applicants' claims 1, 8 and 9.

Furthermore, Whitehead fails to disclose or suggest that a block comprises information on the transmission power level of any block of information as claimed by Applicant. Claims 1, 8 and 9 recite that "one of the blocks comprises information (PR) on the transmission power level of the one block of the downlink transmission or another block of the downlink data transmission to be transmitted subsequently". Whitehead aims at optimal power level for uplink transmission by:

- receiving downlink transmission packet,

- evaluating path attenuation based on power level info included in downlink packet,

- storing attenuation in memory, and

- using attenuation info when transmitting uplink to same target.

Whitehead discusses a carrier power level, which is included in a packet. However, this is still not a block power level, as described and claimed by Applicants. If transmission fails in the Whitehead system, transmission power is increased. However this does not solve the problem addressed by Applicants where the receive window needs to be at a correct level. In Whitehead, the power level of the carrier is indicated to the receiver. This does not make Applicants' claims obvious because the carrier power level is received via system info from a network in GSM and GPRS, for example. In Applicants' claims, the "block" includes the information (PR) on the transmission power level of any block (i.e. "the one block of the downlink transmission or another block of the downlink data transmission to be transmitted subsequently").

Col. 7, lines 59-67 and Col. 8, lines 1-11 of Whitehead, which the Examiner refers to as supporting this rejection, merely discloses that a transmitter ID (612) and transmit power level (614) are encoded into each transmitted packet. The receiver of the packet decodes and estimates the signal attenuation of the path channel. As claimed by Applicants, the successive blocks transmitted from the base station to the mobile station include information on the transmission power level of any block. Whitehead only transmits a transmitter power level, not a power level of any block.

Thus, the combination of Honkasalo, Li and Whitehead does not disclose or suggest each feature of Applicant's claims as

recited in claims 1, 8 and 9. Claims 2-7 and 13-20 are patentable at least by reason of their respective dependencies.

2. Claim 2

Furthermore, claim 2 recites that the one block comprises information (PR) on the transmission power level of another block to be transmitted next. The combination of Honkasalo, Li and Whitehead does not disclose or suggest this feature.

The Examiner suggests that this feature is disclosed in Whitehead at column 7, line 59 through column 8, line 11. Column 7, line 59 through column 8, line 11 merely discloses that a transmitter ID (612) and transmit power level (614) are encoded into each transmitted packet. Before each packet is transmitted, the transmit power level is computed, fed to the transmitter frontend by signal 344, and stored in field 614 of packet 610. The receiver of the packet decodes and estimates the signal attenuation of the path channel. Whitehead only transmits a transmitter power level of the packet being sent. There is no disclosure or suggestion that the packet of Whitehead includes a "transmission power level of another block to be transmitted next" as recited in claim 2. Therefore, claim 2 is patentable over the combination of Honkasalo, Li and Whitehead.

3. Claim 3

Claim 3 recites the one block comprises information (PR) on the transmission power level of the one block. The combination of Honkasalo, Li and Whitehead do not disclose or suggest this feature.

The Examiner suggests that Honkasalo discloses this feature at column 8, lines 1-4. However, column 8, lines 1-4 merely recites that the base station measures the quality level from all bursts and attaches the averaged information to the packet that has been collected in the base station based on the bursts transmitted by the terminal device. Nowhere does Honkasalo disclose or suggest the one block comprises information (PR) on the transmission power level of the one block as recited in claim 3. Therefore claim 3 is patentable over the combination of Honkasalo, Li and Whitehead.

4. Claim 6

Claim 6 recites the transmission power level is indicated as a difference (PR) with respect to a known reference level. The combination of Honkasalo, Li and Whitehead do not disclose or suggest this feature.

Column 8, lines 25-32 of Honkasalo are used by the Examiner as support for the rejection of Applicants' claim 6. Column 8, lines 25-32 discloses that the terminal device uses feedback (i.e. information on the measured quality level) from the base station to calculate the difference between the measured level and the target level of the base station. This difference is used to correct the value of transmission power so that the quality level received by the base station would get closer to the target level (col. 8, l. 40-43). This is not the same as "the transmission power level is indicated as a difference (PR) with respect to a known reference level" as recited by Applicants. The difference between the target level and measured level of Honkasalo is used to calculate a new transmission power level of the packet. In Honkasalo, it is the

new transmission power level not a difference in power level that is indicated to the base station.

Therefore, claim 6 is patentable over the combination of Honkasalo, Li and Whitehead.

5. Claim 13

Claim 13 recites the mobile station using the transmission power level information to determine if a change in a received signal is caused by the base station or an environmental change. The combination of Honkasalo, Li and Whitehead does not disclose this feature.

The Examiner notes that the combination of Honkasalo and Li does not disclose this feature but suggests that Whitehead discloses this feature at column 6, lines 26-29 and lines 41-42. Column 6, lines 26-29 of Whitehead discloses that values δ_{csd}, δ_{pd}, δ_{cse}, δ_{pe}, δ_{css}, δ_{ps} are parameters that can be configured in each transmitter to optimize the transmitter to its environment. Column 6, lines 41-42 discloses that the exact values chosen for the δ's will depend on environmental characteristics. Nowhere in these passage or any other passage of Whitehead is it disclosed that the transmission power level information to determine if a change in a received signal is caused by the base station or an environmental change. The δ's of Whitehead do not determine anything but rather they are configured parameters for optimizing the transmitter. Thus, claim 13 is patentable over the combination of Honkasalo, Li and Whitehead.

6. Claim 16

Claim 16 recites the mobile station using the transmission power level information to adjust a reception level in the mobile station to a correct range. The combination of Honkasalo, Li and Whitehead do not suggest or disclose this feature.

The Examiner cites to column 6, lines 26-29 of Whitehead in support of this rejection. However, column 6, lines 26-29 of Whitehead discloses that values δ_{csd}, δ_{pd}, δ_{cse}, δ_{pe}, δ_{css}, δ_{ps} are parameters that can be configured in each transmitter to optimize the transmitter to its environment. Furthermore, Whitehead does not concern mobile stations, rather Whitehead is concerned with WLANs. Nowhere does Whitehead disclose or suggest a mobile station using the transmission power level information to adjust a reception level in the mobile station to a correct range.

Therefore, claim 16 is patentable over the combination of Honkasalo, Li and Whitehead.

7. Claim 17

Claim 17 recites adding the information on the transmission power level to the block when the block is transmitted. The combination of Honkasalo, Li and Whitehead do not disclose or suggest this feature.

The Examiner suggests that this feature is disclosed by Whitehead at column 7, lines 59-67 and column 8, lines 1-11. However, column 7, lines 59-67 and Col. 8, lines 1-11 of Whitehead, merely discloses that a transmitter ID (612) and transmit power level (614) are encoded into each transmitted packet. The receiver of the packet decodes and estimates the

signal attenuation of the path channel. As called for in Applicants' claims, the successive blocks transmitted from the base station to the mobile station include information on the transmission power level of any block. Whitehead only transmits a transmitter power level, not a power level of any block.

Whitehead fails to disclose or suggest that a block comprises information on the transmission power level of any block of information as claimed by Applicant. Whitehead discusses a carrier power level, which is included in packet. However, this is still not a packet power level or a block power level, as described and claimed by Applicant. If transmission fails in the Whitehead system, transmission power is increased. However this does not solve the problem addressed by Applicants where the receive window needs to be at a correct level. In Whitehead, the power level of the carrier is indicated to the receiver. This does not make Applicants claim 17 obvious because the carrier power level is received via system info from a network in GSM and GPRS, for example. As claimed by Applicants, the "block" includes the information (PR) on the transmission power level of any block (i.e. "the one block of the downlink transmission or another block of the downlink data transmission to be transmitted subsequently").

Thus, the combination of Honkasalo, Li and Whitehead does not disclose or suggest each feature of Applicants' claim 17.

A check in the amount of $500 is enclosed herewith for the appeal brief fee. The Commissioner is hereby authorized to charge payment for any additional fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

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VIII. CLAIM APPENDIX

The texts of the claims involved in the appeal are:

1. A method for controlling the operation of a mobile station (MS) in a packet switched communication network based on a cellular network, which communication network is arranged to transfer information using downlink or uplink data transmission between a base station (BTS) and at least one mobile station (MS) by means of a radio channel, comprising the steps of:

using a transmission power on a set level on the radio channel to transfer information;

transmitting information that is divided into successive blocks of the downlink data transmission from the base station (BTS) to the mobile station (MS) on the radio channel;

and wherein one of said blocks comprises information (PR) on the transmission power level of said one block of the downlink data transmission or another block of the downlink data transmission to be transmitted subsequently.

2. The method according to claim 1, wherein said one block comprises information (PR) on the transmission power level of another block to be transmitted next.

3. The method according to claim 1, wherein said one block comprises information (PR) on the transmission power level of said one block.

4. The method according to claim 1, wherein an RLC block according to the GPRS system is used as said one block, and information (PR) on the transmission power level is transmitted by means of an MAC header in the RLC block.

5. The method according to claim 4, wherein the transmission power level (PR) is indicated by means of bits contained in an octet of said MAC header, and at least some of the bits being arranged for an TFI field (TFI) in a way known as such.

6. The method according to claim 1, wherein the transmission power level is indicated as a difference (PR) with respect to a known reference level.

7. The method according to claim 6, wherein said known reference level used is a BCCH channel according to the GPRS system.

8. A communication system for implementing packet switched data transmission based on a cellular network, which communication system is arranged to transmit information using downlink or uplink data transmission between a base station (BTS) and at least one mobile station (MS) by means of a radio channel, comprising:

means for arranging data transmission on the radio channel to take place with a transmission power on a set level, and

means for arranging the radio channel to transmit information that is divided into successive blocks of the downlink data transmission, from the base station (BTS) to the mobile station (MS), and

means for also arranging the communication system to transmit one of said blocks containing information (PR) on the transmission power level of said one block or another block to be transmitted subsequently, via a radio channel.

9. A wireless communication device, arranged to function in a communication system, which communication system is arranged to implement packet switched data transmission based on a cellular network, and which communication system is arranged to transmit information using downlink or uplink data transmission between a base station (BTS) and said wireless communication device (MS) by means of a radio channel, comprising:

means for arranging data transmission on the radio channel to take place with a transmission power on a set level, and

means for arranging the radio channel to transmit information that is divided into successive blocks of the downlink data transmission, from the base station (BTS) to the wireless communication device (MS), and

means in the wireless communication device (MS) arranged to receive one of said blocks transmitted by the base station (BTS) on the radio channel, which one block contains information (PR) on the transmission power level of said one block or another block to be transmitted subsequently.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. The method of claim 1 further comprising the mobile station using the transmission power level information to determine if a change in a received signal is caused by the base station or an environmental change.

14. The method of claim 1 further comprising using the transmission power level information to adjust at least one parameter in the mobile station.

15. The method of claim 14 wherein the parameter is timing, frequency or amplification.

16. The method of claim 1 further comprising the mobile station using the transmission power level information to adjust a reception level in the mobile station to a correct range.

17. The method of claim 1 further comprising adding the information on the transmission power level to the block when the block is transmitted.

18. The method of claim 1 wherein the information on the transmission power level is determined on a transmission end of the radio channel.

19. The communication system of claim 8 wherein the information (PR) on the transmission power level is the transmission power level at the transmitting end of the radio channel.

20. The communication device of claim 9, further comprising the one of said blocks including information on the transmission power level at the transmitting end of the radio channel.

IX. EVIDENCE APPENDIX

Not Applicable

X. RELATED PROCEEDINGS APPENDIX

Not Applicable